

REMARKS

Claims 1-4 are pending in this application. By this Amendment, claim 1 is amended.

Applicants appreciate the courtesies shown to Applicants' representative by Examiner Renner in the March 24, 2004 personal interview. Applicants' separate record of the substance of the interview is incorporated into the following remarks. Specifically, claim 1 is amended to comply with the Examiner's helpful suggestions made during the interview.

Reconsideration based on the above amendments and following remarks is respectfully requested.

I. The Claims Define Allowable Subject Matter

A. Claim Rejections 35 U.S.C. §102

The Office Action rejects claims 1-3 under 35 U.S.C. §102(b) as being unpatentable over U.S. Patent No. 5,850,325 to Miyauchi et al. (Miyauchi). This rejection is respectfully traversed.

The Office Action asserts that Miyauchi discloses a thin-film magnetic head comprising a medium facing surface that faces toward a recording medium; a read head including a magnetoresistive element 200 and a first shield layer 400 and a second shield layer 311 for shielding the magnetoresistive element, the first and second shield layers having portions that are located in regions on a side of the medium facing surface and opposed to each other, the magnetoresistive element being placed between the portions of the shield layers; and a write head including a first magnetic layer 312 and a second magnetic layer 320

that are magnetically coupled to each other and include magnetic pole portions opposed to each other and placed in regions on a side of the medium facing surface, each of the magnetic layers including at least one layer; a gap layer 340 provided between the pole portions of the first and second magnetic layers; and a thin-film coil 330 at least part of which is placed between the first and second magnetic layers, the at least part of the coil being insulated from the first and second magnetic layers; wherein the read head and the write head are placed such that one of the shield layers of the read head and one of the magnetic layers of the write head are opposed to each other; the thin-film magnetic head further comprising a magnetism intercepting layer 313 provided between the one of the shield layers and the one of the magnetic layers, the magnetism intercepting layer having a thickness of 0.2 μm or greater and made of a nonmagnetic metal material that is capable of being formed through plating. The Office Action cites Fig. 5 and col. 6, lines 31-32, col. 7, lines 49-50.

It is respectfully submitted that Miyauchi fails to disclose or teach all of the features recited in claim 1. Specifically, Miyauchi fails to disclose or teach the feature wherein one of the shield layers of the read head, the one of the magnetic layers of the write head, and the magnetism intercepting layer have substantially the same widths as the medium facing surface and are formed using a single frame as recited in amended claim 1. Specifically, as discussed in the March 24 interview, since the widths of the layers are the same, then the layers must have the same planar shape, since the term "planar shape" is the shape as viewed from above.

The specification at least on page 18, lines 12-14 discloses that the one of the shield layers (the top shield layer 8) of the read head, the one of the magnetic layers (the bottom pole layer 10) of the write head, and the magnetism intercepting layer 9 are formed using the single frame 54. It is self-evident that those three layers formed using the single frame have substantially the same planar shape.

In the thin-film magnetic head disclosed by Miyauchi the magnetic shield film 311 and the first magnetic film 312 are opposed to each other, with the non-magnetic film 313 in between. However, the magnetic shield film 311 and the first magnetic film 312 have different widths (see Fig. 4 and Fig. 11 of Miyauchi).

During the March 24 interview Examiner Renner stated that Fig. 5 of Miyauchi discloses that the magnetic shield film 311 and the first magnetic film 312 with a non-magnetic film 313 have essentially the same shape.

However, Fig. 5 of Miyauchi does not show the planar shapes of the magnetic shield film 311, the first magnetic film and the non-magnetic film, since Fig. 5 is a partial view. However, Figs. 4 and 11 of Miyauchi clearly show that the planar shapes of the films 311 to 313, are not substantially the same as viewed from above.

Since it was agreed during the March 24 interview that films 311 to 313 do not have the same track width, the films could not have the same planar shape, as viewed from above.

In addition, Miyauchi fails to disclose or teach forming the shield layers at the read head using a single frame, as recited in claim 1. Instead, Miyauchi clearly shows, in Fig. 8, that the layer 322 is formed by the single frame and not the films 311 to 313.

It is respectfully submitted that since claims 2 and 3 depend from claim 1, that these claims are allowable at least for the reasons stated regarding claim 1.

Withdrawal of the rejection of claims 1-3 is respectfully requested.

The Office Action rejects claims 1 and 2 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,445,537 to Cates. This rejection is respectfully traversed.

The Office Action asserts that Cates teaches a medium facing surface 122 that faces toward a recording medium; a read head 102 including a magnetoresistive element 108 and a first shield layer 112 and a second shield layer 110 for shielding the magnetoresistive element, the first and second shield layers having portions that are located in regions on a side of the medium facing surface and opposed to each other, the magnetoresistive element being placed between the portions of the shield layers; and a write head 202 including the first magnetic layer 226 and a second magnetic layer 228 that are magnetically coupled to each other and include magnetic pole portions opposed to each other and placed in regions on a side of the medium facing surface, each of the magnetic layers including at least one layer; a gap layer 230 provided between the pole portions of the first and second magnetic layers; and a thin-film coil 332 at least part of which is placed between the first and second magnetic layers, the at least part of the coil being insulated from the first and second magnetic layers (via 232); wherein the read head and the write head are placed such that one of the shield layers of read head and one of the magnetic layers of the write head are opposed to each other; the thin-film magnetic head further comprising a magnetism intercepting layer 94 provided between the one of the shield layers and the one of the magnetic layers, the magnetism intercepting layer having a thickness of 0.2 μm or greater and made of a non-magnetic metal material that is capable of being formed through plating. The Office Action cites Fig. 9, col. 8, lines 13-15 and lines 25-28.

It is respectfully submitted that Cates fails to disclose or teach all of the features recited in claim 1. Specifically, Cates fails to disclose or teach wherein one of the shield layers of the read head the one of the magnetic layers of the write head and the magnetism intercepting layer have substantially the same planar shape by being formed using a single frame as recited in claim 1.

In the thin-film magnetic head disclosed by Cates, the top shield 110 and the bottom pole 226 are opposed to each other, with the protective layer 94 in between. However, Cates fails to disclose that the top shield 110, the bottom pole 226 and the protective layer 94 have substantially the same planar shape.

It is respectfully submitted that since claim 2 depends from claim 1, claim 2 is allowable at least for the reasons stated regarding claim 1.

Withdrawal of the rejection of claims 1-2 is respectfully requested.

In addition, as discussed in the March 24 interview, U.S. Patent No. 6,504,686 to Sasaki fails to disclose or teach the feature of the magnetism intercepting layer for intercepting magnetism provided between the one of the shield layers and the one of the magnetic layers and extending to the back gap region, as recited in claim 1.

B. Claim Rejections Under 35 U.S.C. §103

The Office Action rejects claim 4 under 35 U.S.C. §103(a) as being unpatentable over Miyauchi. This rejection is respectfully traversed.

It is respectfully submitted that regarding claim 4 that Miyauchi is deficient for the reasons stated above regarding claim 1. In addition, since claim 4 depends from claim 1, claim 4 is allowable at least for the reasons stated regarding claim 1.

Withdrawal of the rejection of claim 4 is respectfully requested.

II. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-4 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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Attachment:
Petition for Extension of Time

Date: April 21, 2004

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